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CLAIMS

1. A touch probe, including
- a casing (1) that defines a longitudinal geometric axis,
  - 5 • a movable arm-set (3) housed in the casing (1), that defines a longitudinal symmetry axis,
  - an arm (13) rigidly coupled to the movable arm-set (3), with an end extending out of the casing,
  - a feeler (15) coupled to said end of the arm (13), and
  - 10 • an electric switch (31) adapted for detecting displacements of the movable arm-set (3) with respect to the casing (1) and including
  - a housing (33),
  - at least a stationary contact (44,45),
  - 15 • a movable contact (51), and
  - a mechanical transmission device (61) adapted for transmitting displacements of the movable arm-set (3) to the movable contact (51), the mechanical transmission device including
  - 20 • an elongate mechanical body (63), located between the movable arm-set (3) and the movable contact (51), arranged and movable substantially along a longitudinal direction, and
  - guide elements (69-73,77) for cooperating with the
  - 25 elongate mechanical body (63),
- characterized in that
- the guide elements (69-73,77) include substantially longitudinal guide surfaces (70-72) integral with said housing (33) and an elastic thrust element (73) adapted for
- 30 urging the elongate mechanical body (63) against said guide surfaces (70-72).
2. The probe according to claim 1, wherein the electric switch (31) includes a spring (53) for urging the movable
- 35 contact (51) against said at least one stationary contact (44,45).

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3. The probe according to claim 2, wherein said electric switch (31) includes at least two stationary contacts (44,45), said spring (53) being adapted for urging the movable contact (51) against the two stationary contacts (44,45).

4. The probe according to one of the preceding claims, wherein said substantially longitudinal guide surfaces (70-72) achieve a binary (71), the elongate mechanical body (63) including suitable surfaces adapted for cooperating with said binary (71) urged by said elastic thrust element (73) along a transversal direction.

5. The probe according to claim 4, wherein the elongate mechanical body (63) includes a pushing stem (65) and a transmission element (67), integrally coupled one with the other, the transmission element (67) defining said surfaces adapted for cooperating with the binary (71).

6. The probe according to claim 5, wherein the elastic thrust element (73) is arranged between surfaces of said housing (33) and a substantially plane portion (77) of the transmission element (67), the transmission element (67) defining a substantially spherical surface adapted for cooperating with the binary (71).

7. The probe according to claim 6, wherein the elastic thrust element includes a bent flat spring (73).

8. The probe according to claim 7, wherein the housing (33) of the electric switch (31) includes a longitudinal slit (75), the bent flat spring (73) being at least partially housed and locked in said longitudinal slit (75).

9. The probe according to claim 8, wherein the bent flat spring (73) defines an enlarged end (74) that partially and transversally extends out of the casing (33) through said

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longitudinal slit (75), the electric switch (31) including an annular locking element (76) adapted for cooperating with an external surface of the housing (33) for preventing the falling of the bent flat spring (73) from the housing (33).

10. The probe according to one of the claims from 4 to 9, wherein the guide elements (69-73,77) include a pair of cylindrical bars (70,72), said cylindrical bars (70,72) define the guide surfaces that achieve said binary (71).

11. The probe according to one of the preceding claims, wherein the movable arm-set (3) includes a transmission pin (25), substantially aligned and adjustable along said longitudinal symmetry axis, the transmission pin (25) being adapted for cooperating, further to displacements of the arm (13), with the mechanical transmission device (61) of the electric switch (31).

12. The probe according to claim 11 as depending from one of the claims from 5 to 9, wherein an end of said transmission pin (25) is adapted for contacting, further to displacements of the arm (13), the transmission element (67) of the elongate mechanical body (63).

13. The probe according to one of the claims from 1 to 12, wherein the movable arm-set (3) is supported in the casing (1) by means of a cone-ball coupling (9,5), the movable arm-set and the casing defining annular surfaces (7,11) adapted for mutually contacting and for causing, further to displacements of the arm (13), longitudinal displacements of the movable arm-set (3) suitable for being transmitted, by means of said mechanical transmission device (61), to the movable contact (51) of the electric switch (31).

14. The probe according to one of the claims from 1 to 12, wherein the movable arm-set (3) is supported in the casing

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(1) by a coupling between the plane annular surfaces (7,11), the movable arm-set (3) and the casing (1) defining, respectively, a substantially spherical portion (9) and a substantially frusto-conical seat (5) adapted to mutually contact and to cause, further to displacements of the arm (13), the partial disengagement between the plane annular surfaces (7,11) and the consequent longitudinal displacements of the movable arm-set (3) suitable for being transmitted, by means of said mechanical transmission device (61), to the movable contact (51) of the electric switch (31).

15. The probe according to one of the preceding claims, wherein the casing (1) encloses a sealingly closed chamber (19,22,34,35) filled with inert gas, the electric switch (31) being arranged in said sealingly closed chamber (19,22,34,35).